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Remarks:

Attached is suggested revision to page 4 of our contribution to inter-agency memorandum on South Korean nuclear capability. We have included cost information as you requested. If you have any questions, please call.

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South Korean Nuclear Capability

Suggested Revision of Page 4 of OSI Contribution

...for research and development. The budget for FY 1974 provided \$200 million, nearly 2 percent of the central government's \$11.8 billion budget, for nuclear activities.

In contrast, South Korea's expenditures on its nuclear program have, thus far, been very small. Expenditures by the Atomic Energy Research Institute during 1959-73 totaled about \$21 million and currently are running at some \$2 million annually.

A 600 megawatt pressurized water reactor under construction by Westinghouse Electric International Co. at a site near Pusan since March 1971, and scheduled for completion in 1976, is to cost about \$250 million. A second such reactor for the same site has recently been ordered from Westinghouse for operation in 1979. Agreement for purchase of a 600 MW natural uranium fueled, heavy water moderated, reactor from Canada at a cost of \$300 million was reached at the end of December. The \$800 million cost of these three large power reactors is being financed largely by foreign loans. Korean long range plans for building one reactor per year for the next 6-8 years will depend almost entirely on the availability of foreign credits.

If South Korea were to undertake a weapons program based on a domestically produced, safeguard-free, CANDU-type reactor, the

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necessary capital investment for reactor, heavy water plant, fuel fabrication facilities, and a chemical reprocessing plant would be in excess of half a billion dollars, to say nothing of the cost of procuring uranium without safeguards and of conducting the necessary weapons R&D and operating the facilities to produce plutonium. This entire amount would have to be domestically financed. Much of the cost could, however, be written off as necessary to the development of electric power generating capacity and other non-explosive uses of nuclear energy. That portion needed exclusively for production of nuclear explosives would be relatively small.

It is clear that South Korea could direct its efforts in other ways to develop a source of plutonium. It is probably not out of the realm of possibility that it might design and construct a small nuclear reactor using natural uranium fuel without going first to Canada for a prototype. The entire Korean nuclear program could be scaled down and directed to the production of plutonium for a small number of weapons. A program to produce one or two weapons per year probably would cost at least \$200 million before testing an initial device would be possible. This figure would include capital investment on the order of \$50 million for necessary facilities for research, production, and testing, and some \$150 million to cover operating expenses for

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research facilities for at least five years and production facilities for two years. Such a program probably could not long go undetected, and it is doubtful that it could be completed in much less than 10 years.

[Redacted box]